

U. S. Department of Agriculture.

FIELD DIARY

OF

Mr. Vernon Bailey

1913

(Official title.)

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INSTRUCTIONS.

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James Wilson
Secretary of Agriculture.

8-833

July 1+2

Elk River, Minnesota
Visited the Laramade swamps
to learn present condition
of the Saw Fly Larvae which
have defoliated and killed
some of the trees in 1911+1912.

Found a few but not
in numbers to seriously
injure the trees. A
branch here and there would
have a bunch of the caterpillars
eating the leaves, but no
serious harm is done unless
the leaves are all eaten off
from a large number of
branches. There are
some dead branches and
an occasional dead tree
from previous years.

Birds were numerous
in the swamps ad were
evidently attracted there
by the caterpillars of which
many species seem very
fond. Those found in the
swamps were
Blackbilled Cuckoo
Hemint Thrush
Bluebird
Chickadee
Maryland Yellowthroat
Red-eyed Vireo
Crow
Goldfinch
Song sparrow
Flicker
Hairy Woodpecker
Rough grouse

Many others were common along
the borders and were undoubtedly

feeding on the caterpillars.
It is evident that the abundance
of birds is due in part to the
caterpillars & that the decrease
in caterpillars is due in large
part to the abundance of birds.
See note book for list
of birds of the vicinity.

July 3 - Took a 10 AM, N.P.
train for Fargo, and arrived
there about 7 P.M.
Went to Gardner's Hotel.

July 4 - Went out to Dr. W. B. Beeb's place near the Agricultural College to have a talk with him in regard to field work for the summer. Arranged to meet him at the fair grounds at 2 P.M. to see the exhibit of birds he had at the fair. Then went to Sciences Hall at the Agrit. College, to see the rest of his collection of birds and mammals.

Purple Martins are common in the central business portion of Fargo and set on the wires and edges of roofs over the streets.

July 5 - Took a 6:10 A.M.
Great Northern train for
Grand Forks and Devils
Lake, but it was a slow
local and did not reach
Devils Lake till 3 P.M.

Ran over to the
Biological Laboratory on
the lake shore and saw
Dr. W. A. Brannon and
Alf Eastgate. Planned
for a trip to Sulky Hill
tomorrow.

The Biological Laboratory
is on the lake shore about 4 or
5 miles south of the town and
is reached by a dummy
engine street car line
that runs about every
hour.

July 4 - Took first caravans to the Biological laboratory at the lake and went with Prof. Brayman & Eastgate across lake in launch to Sully Hill on south shore.

The Hill is a great ridge, or lateral moraine probably 500 or 600 feet above the lake and reaching several miles along the south shore and then swinging south in a broken ridge to Devil's Head & Butterfield.

The north slopes of this ridge are densely timbered down to the lake shore, but the peaks and south slopes are grassy prairie.

Much of the basins and flats
are also timbered and there are
marshes, springs and small
freshwater lakes in the basins
& gulches. The tops of the
highest hills are sharp &
usually capped by long burial
mounds. The open peaks &
crests of ridges are cool &
wind swept, free from flies
& mosquitoes. The woods
are cool and moist with
dense shade and a rich
growth of sarsaparilla,
branching violets, and other
shade loving plants.

The trees are Caspens,
Bur oak, Basswood, Elm,
Ash, Boxelder, in great abundance.
A few Balsam poplars grow in
cold places.

Wild plum, choke & Pin
cherries, Amelanchier bushes,
various willows, Beaked and
Common hazel nuts, gooseberry
& currant bushes. Red Raspberry,
Symphoricarpos, grape, Woodsorrel
& Bittersweet vines, are
abundant. Wild rose &
Cornus bushes & poison ivy
are common.

On the prairie slopes are
Amorpha canescens & *Stipa*
& lots of other grasses

The view from the hill
tops is over miles of prairie
lakes & hundreds of ranches
& many towns is superb.
A band of 6 or 7 young Indians
were on top of the highest peak
but refused to stay or be photographed
said they were from the Black Mts.

The woods are full of birds and we heard thrashers singing on both the up & down trips through the woods.

Service berries are abundant & getting ripe. There are also lots of gooseberries, nearly ripe, green currants, a few ripe raspberries & lots of wild strawberries. Plums, choke & pine cherries will appear later & still later lots of grape & malolopsis & bittersweet berries. Oceans of aquiflaccous berries make good winter bird food. Abundance of but oak acorns & both kinds of hazelnuts will supply plenty of squirrel food & much of the brush is cut of 2-13 feet high in winter by cottontail & snowshoe & fox rabbit

A little smoother green
snail was found and kept alive
down the hill and kept alive
for a specimen by Dr Brown.
Big green opalled rocks
were common on top & down
the sides of the hill.

One fresh oven track was
seen in the road.

July 7. Left Devils Lake
on the G.M. for Minot &
Bismarck & Crosby. 10:35 AM.
No special change in
country till we reach town
on the Souris River, where
the wooded river bottoms
are crossed. About
5 miles west of the river
the sand dunes are struck
& for 5 or 6 miles we go through
a great line of them which
wash the old Souris lake
shore. Sandy soil &
occasional dunes
continue west to near
Granville. Then the prairie
becomes rolling again &
the soil black & clayey.
At Minot the river runs
through a deep wide bottom

which suggests a much
larger stream in the post
glacial time.

Just west of Almat
we climb up over high
bluffs on the SW side of
the river and finally come
out on top of high plains.
Here there is evidence of
greater aridity in the short
grass and hard soil.

Still crops are fairly good
but small & late as they
are all over the state.
The recent heavy rains have
started crops growing in
good shape & will probably
make a fair yield.

Reached Berthold at
2:45 & wait till 4:10
for train to Crosby.

Continued with long line of bluffs
on left to Stamped, then
over more open country west to
Crosby. Arrived 8 P.M.

Slightly undulating prairie on
all sides. Not a tree or bush
in the whole country.

Few lakes or sloughs and
only occasionally a cañon

Prairie grass & plants
rather short but crops are
better than farther back.

Very little of the country
remains uncultivated.

The grain is the colored
wheat & oats & barley and
flax as far as you
can see, with only
here & there a patch of gray
green prairie grass.

July 8. Tramped over country west of town and set traps and caught a few mice in my hands & shot a few birds. Found the ground swarming with a ~~host~~ of little green caterpillars about an inch long. They are feeding on *Chenopodium* and Russian Thistle & nothing else that I can find. Birds & mice are feasting on them, but can make no impression on their numbers.

Mosquitoes are very numerous & troublesome, even on top of hills when the wind blows at noon they bother so I could hardly set traps.

Very windy in afternoon cool

July 9. Got a team & driver
and struck for the hills
south of town. Drove about
15 miles but did not reach
the highest part of the Coteau.
Aneroid at Crosby set
at 1950 feet went up to
2250 on the highest ridge
I reached. Should think the
hills farther south may run
to 2400 or possibly 2500 ft.
There is no trace of any
but transition flora. Not a
tree or bush of native timber
and the small vegetation
runs toward Sonoran rather
than Canadian.
A single *Proracha esculenta*
may suggest proximity to
Sonoran. The aridity and
possibly an influence from west
winds may serve to keep it ~~warm~~

Practically all of the
level prairie country is in
cultivation, but many of the
hillsides and rougher slopes
are still in prairie sod.
Some of the hills are very
stony with well rounded
boulders of granite & other
rocks. These hills are
evidently a big lateral
moraine of the last ice
sheet. In many places
they have a sharp raw
look as of no great age.

Found traces of real
arid region plants, no
cactus or yuccas or
sage brush. There seems
to be abundance of rain here
for good crops & for trees.
Young trees are starting well.

The mosquitos are fierce,
and everywhere out of doors.
Even to the tops of the highest
hills they cover you and bite
in spite of the wind.

There are few sloughs or marshes
but they seem to breed in
every low spot on the prairie
& many of these now have
water in them.

July 10 - Rainy morning &
rained by spells most
of day. Wrote up reports
& notes,

July 11, Took 7:15 train east
to Keniston and drove
across to Kenmare, about
6 miles, at the south end
of the long lake called
Upper Des Lacs. and on the
east side of the Middle
Des Lacs. These lakes lie
in the bottom of an old
trough that may be a glacial
~~or~~ groove or more evidently
an ancient channel of a
big river. The bluffs on
both sides are probably 300
feet high, the tops level
with the prairie back of them.
Rained all day, very cold & windy.

July 13. Went out to the few traps I got out yesterday in the rain & found one *Microtus drumondi* & 3 *peromyscus*. Set more traps & caught one *Microtus mivori* while setting them. Followed up the valley which is very similar to that at Browns Valley, Minnesota between Big Stone & Traverse Lakes.

July 13 - Prof. Bell arrived in evening & went with me to traps and hunting up to lower end of Upper Des Lacs. Got a lot of *Microtus mivori*, some *drumondi* & *notatus* & a *Sorex personatus* & a *richardsoni*. Set more traps for *Sorex*.

July 14, Caught one more
Snow persoonatus & shot
birds & squirrels.

July 15, Went down to Lower
Dis Lacs in auto with
Mr. Engdall and Mr. Pich.
Shot a lot of birds & got
good notes. Found
Snowshoe rabbits abundant
in the thickets.

July 16 — Went over to Moyses
River east of Zorra where
the beaver are destroying
timber on the place of Mr.
Carl Swenson. They had
done much damage & are
said to do more on other
places above and below there.
Photographed houses & cuttings.

July 17, M. C. E. Pick took
us in his big Aperson
car for a 2 days trip
among the lakes where the
water birds are nesting.
Followed up east side of upper
Drs Lake to bridge, crossed
over to Bowbells, then west
& Lignite & beyond to Beavert's
Lake, then back to Lignite &
south to Wards Lake, then
S.E. to Twin Lakes and
camped on top of high
ridge between the Twin Lakes.
Swarms of water birds, ducks,
grubbs, coots & waders in
both lakes; mostly breeding.
lots of young ducklings & grubbs.
Coots. Prairie fire on
one side. A wonderful moonrise
over the lake. A glorious night.

July 18. Continued on south along the west side of the series of Eastwood Lakes for about 120 miles. Then returned to north of Twin Lakes & past Little Butte, then east to Niobrara. Reached home about 9 P.M. just after sundown & had supper with Mr. Pick. Worked on skins till 10 M. & went to bed.

July 19. Worked till 3 P.M. on skins, then went with Mr. Pick to get Reddy ducks on west side of Upper Des Lacs, near the Bowbells bridge. Then came back & worked till half past 1 A.M. & did not finish up our specimens.

July 20, Finished writing
up specimens & packing &
shipping. Took train at
7:30 AM for Minot,
arriving at 10 & went
to Leland Hotel for night.

July 21 - Hunted up C. E. Booth
the taxidermist, who has been
here since 1882 & got
a lot of good notes from
him. Did not find Mr.
Mummery, the other
taxidermist, who lives here.
Took train for Buxton at
2 PM & reached Buxton
at 7 PM. There is no
hotel so went to house of
Mr. Zwischen, the lively
stoply man & found it a
very pleasant place.

July 22 - Went out east on hills to find Micromys pallidus. Found lots of fresh signs & set traps but caught only dennisoni or modestus & lots of Pezomyscetes.

July 23 - Went out and got traps but no pallidus. Packed up, wrote reports & took evening train to Williston. 8 to 9 PM.

There is a strong element of Upper Sonoran at Buford but the Transition species are dominant.

July 24 - Got a deer and drove out over the valley north and east of town & in afternoon across the river to the badland buttes about 6 miles south of town.

Got 10 *Eudromias pallidus*, a Lazuli turtling & a *Sylvilagus mearnsi*.

July 25 - Made up skins & wrote back reports.

July

July 26 - Got a team and drove
east about 2 miles and south
about 10 miles to Bakers Ferry
across the Missouri River.
Then continued southeast
about 6 miles farther to
the ranch of Frank Banks,
owner of the Birdhead Meadows
and a large stock ranch.
Mr. Banks was away so we
returned to The Whitehouse
Ranch (3 miles back), set traps
and staid all night.
Set a line of traps in badlands
north of river before crossing
to be picked up on our return
trip. Big enough badlands extend
along both sides of river valley below
Williston as far as we could see
from the lowest point we reached
on the river. Big woods & marshy
areas & marsh & sloughs on flats.

July 27 - Took up traps and caught
Chipmunks & 2 species of ~~Microtus~~^{P. malottericus} & a
Savoryng and ~~Microtus~~^{P. malottericus} &
2 species of Peromyscus & a little
Sorex. Shot a lot of birds.
Returned across ferry &
stopped by river to skin our
specimens. Reached Williston
about 4 P.M. Made up skins
& shipped a box by mail.
Wrote reports. Planned to catch
2:55 AM train in morning for
Minot so as to get the next
train for Bismarck.

July 28, Left Williston at 2:55 AM
for Minot & Bismarck. Stopped
an hour at Minot and transposed
to Soo line, arriving there at
9 AM and reaching Bismarck at
6:30 PM.

Rolling, glaciated prairie
all the way after leaving Mouse
River at Velva. Considerably
timbered, oak, elm, aslo Boxelder
along Mouse River.

Dog Den Buttes are a high
group of rounded hills with timber
in gulches. Good farming
country over them & all along.
Crops good where land is well
farmed, poorer scratched in
stubble land. Mostly wheat & oats
& barley. Some rye is cut.
Corn is good where well tilled.
Potatoes are generally good.

No great variation of species until we strike into the river valley near Woodburn, where there is an increase in Sonoran forms. *Hibiscus arnottii* becomes abundant.

July 29 Went over to Mandan to see Allen, the taxidermist and got some good specimens from him including 3 ♀ skulls of *Ovis auduboni* from Medora, a swift fox from Mandan & some extra fox skulls. The sheep skulls were from sheep killed by the Marquis De Mores near Medora, many years ago & sent with others to Allen for mounting, but the ewes were not used.

Mr. Allen says the sheep we have mounted by Akeley probably came from Montana, as at that time he was getting sheep from a Montana dealer.

July 30. Left Bismarck at 8 A.M.
for Ft. Clark, via Mandan, on the new
branch of the N.P. which runs up to Stanton.
Reached Ft. Clark at 11 A.M. and found
Jewett skinning birds & mice.
He had a good series of Drydomys &
Thomomys & other things including
Perognathus fasciatus & *Ruthrodontomys*.
He took up traps & packed up and we all
returned to Bismarck, arriving at 6 P.M.
Got good notes & lists of plants &
Jewett has bird & mammal lists.

The country west of the river is
decidedly arid, the grass short & brown,
but good crops are ripening where
ever the seed was well put in.
The hay crop on the river flats is
heavy, but these flats should be all
in alfalfa.

Saw lots of sharp-tailed grouse all
along the R.R. Some good beaver ponds down.
Great crop of chokecherries & bullberries;

There are many Savanna species along the Missouri R. from Beulah to Ft. Clark, on both sides, but the dominant species are Hausmannia. The Savanna element is less strongly marked than at Beulah & Williston or at Medora, but should be shown as a strong trace.

Crops are earlier & farther along than anywhere back on our way. Corn is good & well tasseled out.

July 31 - Left Bismarck at
1:15 PM or a little later
for Medora. Passed beautiful
groves of elm & cottonwoods
& oaks just west of
Mandan, then climbed slowly
up onto the higher prairie,
and westward over short grass
plains to Dickinson, then
still higher to Belfield where
we began to go down toward
the Little Missouri through
Badlands. Some *Pinus ponderosa*
grows on the higher buttes and
lots of *Juniperus scopulorum*.

At Medora ^{5:30 P.M.} the warm slopes
are largely Upper Sonoran, the
cold slopes transition, scrubby &
Juniper woods.

Very arid, hot and dry.

Aug. 1 - Hunted and tramped over hills about Medora till 10 AM when the west bound train was due, then wrote notes till it arrived at 4:20 PM. Went west to Sentinel Butte, arrived 5:30 PM.

Soon out on high plains west of Little Missouri R. valley but many buttes and some badland gulches over plains. Country rather arid, but good crops of grain at Sentinel Butte where good dry farming methods are practised.

Mt. Mr. Louis F. Crawford
Mr. Martin and
Mr. Kitchens, all
educated and progressive men of Sentinel Butte.

Aug. 2 Got team & grub
& started at 9 AM for the
N. Dak. Nat. Forest, about 35
miles S E of Sentinel.
Drove straight south about
20 miles, then S E to the
Little Missouri River at
~~Joe~~ Myers ranch, then
down the river to ranch
of Bill Follett, who lives
at north west corner of
Forest. I camped in his
pasture.

Rough badlands all
along the river, but big
grassy plains back from
the streams. Great
flat topped buttes. Sentinel,
Flat top, and Bullion,
stand up 500 or 600 feet
above the prairie with
rock rivers and deep gulch

sides, bushy ravines
+ some springs. Not much
timber, for them.

There are other big flat
topped buttes south of
River, & many sharp
little peaks.

The river bottoms are sandy
and hot and partly timbered
with cottonwoods & boxelder &
ash & elm & mulberry
and partly grassy flats &
partly brushland.

Many good farms on the
prairie & good stock ranches
along the river & rough country.

Aug. 3 - Went on foot
over to Gap Creek on the
Nat. Forest and saw most of
the timber and the country in
general.

The forest is scattering
along rough edges of badland
valley rims, mainly on N.E.
slopes or rocky tops.
It is mainly scrubby yellow
pine, the best of which has
been cut out long ago.
Considerable young growth is coming
on and will do well if not
destroyed by porcupines or
something else.

The whole country is fine
stock range with abundance
of good grass, water & cool
warm slopes for winter.

Aug. 4. Returned by way of
Bouillon Butte, near which we
shot 7 *Anthus spilogaster*.
The Butte is big and high &
the birds probably nest on it.
Got back to Sentinel Butte
at 5 P.M.

Aug. 5 - Packed up, wrote up notes
& rocks and took train
at 9 P.M. for Glendive,
where we had to stay until
morning for a train to Billings.

Aug. 6, Left Glendive at 6 AM
+ reached Billings at 12 M,
Valley very dry and unirrigated
crops generally short.
Grass brown & low & much
curled up.

Lots of *Sarcobatus*, *Atriplex*
canescens, *suttolii* & *confertiflora*.
Artemisiae *cana* & *hudsoniana* &
some *Tridentata* & *frigida*.
lots of *Bigelovia grandis*,
Tortuosa, some *canescens* &
the woody white short hair
canescens, some *Gutierrezia*,
lots of *Eruodia*, some *Wimberlea*
locoecaulis, *Aquilegia platyptera*,
Aphonina (white) & many
other Sonoran plants, but
also many *Zauschneria* species.
The old valley is mixed & the
hills generally covered with yellow
pine,

Hunted all along rim rock at Billings & Canyon
wms but found none.

Rock Wrens are open & also
Sayornis & Cliff swallows nests
chipmunks & long eared
cottontails.

A circus in Billings &
not a room to be had in
town. So we returned to
Hawley at 8 P.M. arriving
at 9:30, and laid over
night to catch the 8 A.M.
train to Sheridan.

Aug. 7. Left Huntly at 8:20 AM
on CB&Q ad arrived at
Sheridan, Wyo., at 12:30
Baggage did not come.

Aug. 8. Wrote on both reports
, called on Forest Supervisor
ad get information about
country ad roads .

Aug. 9 Got team ad drove over to
Wolf Creek at Wolf Creek 5 miles & the
Eaton Bros Ranch - ~~The Dude Ranch~~.
Arrived at 2 PM & set up traps
for Marmots but it rained steadily
all the afternoon .

The ranch is on Wolf Creek as it
comes out of the canyon .
The mountains are hidden in clouds,
but run up steep & timbered from the
base

Aug. 10, Trails to wet & slippery for a horse so I started up on foot & followed up Wolf Creek trail to 8000 feet, turning south toward the peaks. Got transition & Canadian zone lines. Tramped all day & got back to ranch at 7 P.M.

Aug. 11. Drove back to Sheridan^(18 miles) in P.M. Wrote reports.

Aug. 12. Padad up & left Sheridan on 12:55 P.M. train and reached Rawlins at 3 P.M. Set traps & hunted. The Powder River valley is pure Sonoran. Found lots of Perodipos & shot a Rithrodipos & a Sceloporus.

The valley seems to be purely Sonoran. Very hot & dry.

Aug. 13. Went to traps & hunted in forenoon. Took 3 P.M. train to Gillette, arriving at 4:20. Hunted zones along R.R. Stopped at the Montgomery Hotel. A very barren, and mountainous country. All stock, roping.

Aug. 14 - Wrote reports and got them all up to date before leaving on 4:25 train for Worocoop. Arrived about 5:30.

Little less bare and mountainous than Gillette. All stock country & sheep & cattle.

Saw one fine flock of sage hens.

The Big Horn River is low and barely runs a ripple over the narrow places.

Some big cottonwoods.

Seems to be all Sonoran.

Aug. 15 Hunted all forenoon
Collected & sent in a lot of plants
got one *Eriogonum pallidus*.
Stage does not go to Sundance till tomorrow.

Aug 16, Took Stage at 7 AM for
Sundance & arrived there at
4 PM. 42 miles
Moorecroft is +211 feet ad
Sundance 4750 ad ~~the~~ highest
ridge between is 4900 feet.
At Moorecroft there is a strong
element of Sonoran ad at
Sundance a trace on hot slopes
but the general region is
mainly transition.

Yellow pines & Quercus cover
the ridges but great slopes
& valleys are open & grassy
dry farming is common
but usually poor.

Aug. 17-20 Sundance,
Collected in gulch N W of town
mostly on Mt. Storm's place.
Hopped along Creek & in
meadows & woods ad
cliffs.

The weather is very hot &
dry ad there has been but
little rain this year.
Crops are generally poor
except where the best of
farming methods have been
followed. Grass & feed is
rather short but good ad
stock are doing well.

Stock raising is the main
industry ad change to dry
farming is coming slowly
ad with a great majority of
pastures.

Aug. 20 Drove up to Bock's Mine
near Warren Peak in the
Bear Lodge Mts. & stayed over
night, setting traps & hunting
for snowshoe rabbits and
Woodchucks, neither of which
I could find a trace of.
Got a Porcupine & Jack rabbit
& some mice & Litterles.
& notes on birds.
Mapped the Canadian zone of
the Mts. from the peaks.

Aug. 21, Came back to Sundance
and made up specimens &
got ready for another trip.

Aug. 22 - With team & drivers -
camp outfit started for Mts. east of town.
Went to Calvert's ranch, then up
Rattlesnake Creek to near peak of
Cement Ridge, and camped at the
Forest ranger pasture a half mile below
the lookout station on peak and
set traps till dark. Camp was
about 6000 feet. Canadian zone on
cold slopes, transition on warm
slopes to top of ridges & except
lots of good yellow pine timber,
dense growth of aspens on
cold slopes. No spruce or fir.
lots of bur oak with yellow pines.
Ranches all along creek
bottoms, raise hay & grain &
potatoes & keep stock to range on
Nat. Forest.

Aug. 23, Went up to lookout station
on peak where Van Meter keeps
watch for fire. Then struck east
and north to Linton & Welcome
and then north down long ridge
to Sand Creek Canyon & up
it about 4 miles to John Boykin's
place where we camped two nights.
Most of the top of the Mts. have been burnt
over & grown up to dense second growth
of aspens & oaks & berries & acorns
are abundant. A few ruined camps
are mostly abandoned & people are
scarce. There are great areas of
fine yellow pine timber on the north
slope lower down.

Sand Canyon is 1000 to 2000 feet
deep, steep walled & timbered rimmed,
and the most beautiful stream & big oak
bottoms I ever saw. It is a paradise
for fishing, hunting, trapping, camping &
for fruit & gardens & homes.

Aug. 25 - Left Sand Cliff Canyon
+ drove down to Belash, then N.E. to
Aladdin + up the S. fork of Hay Creek
to where Paul Kleinadam lives, about
3 miles south of Eothan.

Camped at the ranch of this old
German naturalist, taxidermist,
bear hunter, cowpuncher + rancher
+ talked half the night with him
about old times.

Got a lot of skulls + saw tods etc.

Aug. 26. Took a short cut over
Table Mtn. to Sundance + got
in about 1 P.M. Mode up
specimens rest of day
+ part of night.

Aug. 27 - Sundance.
Packing + writing.

Aug. 29. Staged from Sundance
to Upton, 3 1/2 miles,
Upton said to be 4500 feet.

Road past sagebrush and across
Lyon Lake Cr. Mason + dry creek
Open valleys and gullies
ridges all the way.

Upton is partly in the pine
+ partly in bare shale valley.
All transition zone, no trace of
Sonoran. High bare ridges
+ west. lots of sagebrush
+ very arid.

Aug. 30 - Left Upton 7 AM on C B & Q
to Edgmont, arriving 9 AM.

Struck Sonoran valley just
before meeting Bluecastles & thence
kept close to yellow pines in east but
in Sonoran open valleys.

At Edgmont, in Cheyenne River
valley it is mainly hot, and
Sonoran, rather dry & bare,
with some sagebrush & lots of
Dactyloctenus & *Opuntia* & some
Arenaria platypterus & *Euphorbia*
like *marginalis*, & lots of big
Chrysothamnus graveolens.

Populus fremontii makes wide groves
on the river bottoms which are
mainly sandy.

Dry farming is generally poor &
badly dried up.

Sept. 1 Left Edgmont at 9 AM
for Deadwood & Spearfish.

Soon entered hills with yellow pines
& junipers and a trace of Sonoran species
on hot slopes up as far as Blackwater.
Then yellow pines & open parks &
meadows to Custer, with only
slight traces of Canadian grass
on cold slopes, shown by strips
of aspens & white birch. Not
enough to map however before
reaching Custer.

Prairie dogs abn in lower parks.

Thomomys ~~varius~~ ^{varius} in fields & meadows.
Commonly ~~not~~ ^{of} a ~~regular~~ ^{regular} pasture.
North of Custer there is more grass of Canadian
with white bass, aspen, and willow & pin
cherry on cold slopes, and over the first
divid lots of *Picea*. To Hill City,
where we stopped for supper & got dark.

Road to Deadwood 10 PM

Sept. 2 Left Deadwood 7 AM for Spearfish - Arrived 10 AM.

At Deadwood Canadian on N E + transition SW + open slopes.

Spruces, aspens ^{white} + birch on cold slopes yellow pine + oaks on warm slopes, narrow leaved cottonwood + western birch along streams.

Englewood, mainly Canadian, dense spruce + aspens + all cold slopes.

Terry 6100 feet, on sides of Terry Peak 7069 feet, all Canadian. Big rock slides on Peak good for Orobous.

Hagon, some scrub on N E side of peak. All Canadian

Elmore, head of Spearfish Canyon, dense spruce, good collecting locality.

Station + camp.

Soroco, Station + rustic hotel - timber all barest out of canyon.

Iron Creek station, stop for stage to Linton, 8 miles up hill. No more slopes down canyon to Spearfish! Lower part of canyon burned out but filling up with second growth. Canadian reaches to near lower end on steep N E exposures. Oak, Elm, Ironwood, ash boulders + narrow leaved cottonwood in bottom of lower canyon. + reaching down to Spearfish.

Spearfish is very pleasant, good town + hotel + trees + grass and great abundance of all variety of apples. big fields of alfalfa + grain below.

None of Sonoran on warm slopes bottoms + cold slopes transition.

Solanum rostratum, Cleome, Emilia, Yucca + cactus on warm slopes.

Sept. 3 Staged to Bill Founds.

8 to 10 AM! 16 miles.

Big farming valleys along streams,
Wheat & grain & fruit, fine apples.

Sonoran zone on warm slopes &
levels. Pines & oaks on edges &
cold slopes

Left Bill Founds on train at 5 PM.

Reached Sturgis at dark &

Chadron, Neb. at 12 PM.

Sept. 4. Left Chadron at 7:20 AM

& reached Casper at 4 PM.

See reports for physiography.

Sept. 5. Left Casper at 11 AM. and
arrived at Cheyenne at 7 PM.

Colored zone map along way.

Sept. 6. Rained at Cheyenne, Saw
Gov. Carey & got promise of permit for
2 weeks

Sept. 7. Left Cheyenne on N.P. for
Denver 9:20 AM, arrived
Denver 12 M.

Left Denver on C.B.Q. for Lincoln
Nebraska at 3:30 PM.

Sept. 8. Arrived at Lincoln at
1:30 PM. got room at Lincoln
Hotel and went to University
to see Prof. Wolcott, Swenk,
and Mr. Shoemaker and Mr.
Zimmer.

Came to Omaha (2:10 to
3:30 PM) with prof. Wolcott
and left on C. & NW for
Vermillion, S.Dak. at 7 PM.
Arrived Sioux City 11 PM

Sept. 9. Took C.W. & St. P. train for
Vermillion, 10-11 AM.

Sept. 10 Left Vermillion at 2:30 P.M.
Chicago, M. St. P. train via Sioux City
for Chicago

Sept. 11 Arrived Chicago
9:30 A.M. and left at
10:30 on Penn.
Due in Washington 8:25 tomorrow

Sept. 12, Arrived Washington
9:25 A.M. on boat to

<u>Gymnophis</u>	Eulby Hill
	Sentinel Butte
<u>Boscanias</u>	Whitbore Ranch
	Sentinel Butte
	Medora
	Ft. Clark
<u>Pituophis</u>	N.D. Nat. Forest
	Magpie Cr.
	Ft. Clark
	Medora
	Dinner
	Sentinel
<u>Elaphe</u>	Ft. Clark
	Magpie Cr.
	Maltese
	Whitbore Ranch
	Kernmore
	Crook
<u>Entomophis vagans</u>	Bighorn Mts.
	Bear Lodge Mts.
	Black Hills

2011
Nov 27

Crotalus confluens

Sutherland	one
N.D. Nat. Forest	"
Mikelson	seen (?)
Quinton	"
Glen Ulm	subadult (?)
Mandan?	scarce

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